

WHAT IS CLAIMED IS:

- 1 1. A separable apparatus to cushion and dampen vibration,
2 comprising:
3 an overmold member composed of a mixture of an
4 elastomeric material and a foaming agent, comprising:
5 a first non-foam layer; and
6 a second non-foam layer, in conjunction with the first layer,
7 enveloping a micro-cellular foam layer.
- 1 2. The separable apparatus of claim 1, wherein the elastomeric
2 material is selected from a group comprising thermoplastic olefins,
3 thermoplastic rubbers, thermoplastic polyurethanes, polyvinylchlorides,
4 styrenic block copolymers, and combinations of such materials.
- 1 3. The separable apparatus of claim 1, wherein the two non-
2 foam layers and the foam layer are integrally molded with each other by
3 injection molding of resin.
- 4 4. The separable apparatus of claim 1, further comprising a
5 substrate member coupled to the overmold member.
- 1 5. The separable apparatus of claim 4, wherein the overmold
2 member is mechanically attached to the substrate member.
- 1 6. The separable apparatus of claim 4, wherein at least one of
2 the non-foam layers is bonded to the substrate member.
- 1 7. The separable apparatus of claim 4, wherein the substrate
2 member is selected from a group of materials including: wood, metal,
3 thermoplastic resin, thermoset resin, epoxy, ceramic, glass, and a
4 combination of any two such materials.

1 8. The separable apparatus of claim 1, wherein the thickness of
2 the foam layer exceeds the combined thickness of the non-foam layers.

1 9. The separable apparatus of claim 1, wherein the combined
2 thickness of the non-foam layers exceeds the thickness of the foam layer.

1 10. The separable apparatus of claim 1, wherein the combined
2 thickness of the non-foam layers is equal to the thickness of the foam
3 layer.

1 11. The separable apparatus of claim 1, wherein the overmold is
2 configured in a predetermined shape.

1 12. A tool comprising:
2 a tool-head;
3 a grip coupled to the tool-head, with the grip having a base;
4 and,
5 a separable overmold member disposed on the grip, with the
6 overmold composed of a mixture of an elastomeric material and a foaming
7 agent, comprising a first non-foam layer and a second non-foam layer, in
8 conjunction, enveloping a micro-cellular foam layer.

1 13. The tool of claim 12, wherein the elastomeric material is
2 selected from a group comprising thermoplastic olefins, thermoplastic
3 rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block
4 copolymers, and combinations of such materials.

1 14. The tool of claim 12, wherein the base is selected from a
2 group of materials including: wood, metal, thermoplastic resin, thermoset
3 resin, epoxy, ceramic, glass, and a combination of any two such
4 materials.

1 15. The tool of claim 12, wherein the two non-foam layers and
2 the foam layer are integrally molded with each other by injection molding
3 of resin.

1 16. The tool of claim 12, wherein the overmold member is
2 mechanically attached to the base.

1 17. The tool of claim 12, wherein at least one non-foam layer is
2 bonded to the base.

1 18. The tool of claim 12, wherein the base has a plurality of
2 pockets in the grip portion, wherein the separable overmold member is
3 contained.

1 19. The tool of claim 12, wherein the thickness of the foam layer
2 exceeds the combined thickness of the non-foam layers.

1 20. The tool of claim 12, wherein the combined thickness of the
2 non-foam layers exceeds the thickness of the foam layer.

1 21. The tool of claim 12, wherein the combined thickness of the
2 non-foam layers is equal to the thickness of the foam layer.

1 22. The tool of claim 12, wherein the separable overmold
2 member is configured in a predetermined shape.

1 23. A method to make a separable apparatus for a tool in a mold,
2 the separable apparatus to cushion and dampen vibration, with the
3 separable apparatus including an overmold composed of a mixture of an
4 elastomeric material and a foaming agent, comprising a first non-foam
5 layer and a second non-foam layer, in conjunction, enveloping a micro-
6 cellular foam layer, the method comprising the steps of :

7 providing a substrate member in the mold;

8 molding the overmold on the substrate member, wherein the
9 apparatus is made;
10 removing the apparatus from the mold; and,
11 controlling environmental conditions to which the apparatus
12 is subjected during one of a time the apparatus is in the mold and a time
13 after the apparatus is removed from the mold.

1 24. The method of claim 23, including the step of removing the
2 apparatus from the substrate member.

1 25. The method of claim 24, including the step of controlling the
2 time the apparatus is on the substrate member.

1 26. The method of claim 23, including the step of controlling the
2 temperature of the elastomeric material.

1 27. The method of claim 23, including the step of controlling the
2 mold temperature.

1 28. The method of claim 23, including the step of controlling the
2 time the apparatus is in the mold.

1 29. The method of claim 23, including the step of controlling the
2 thickness of the elastomeric material by configuring the geometry of one
3 of the substrate member and mold.

1 30. The method of claim 23, including the step of controlling the
2 ambient air temperature around the apparatus after removal from the
3 mold.

1 31. The method of claim 23, including the step of mixing the
2 elastomeric material and foaming agent in a predetermined ratio.

1 32. The method of claim 23, including the step of selectively
2 restraining the overmold.

1 33. A tool comprising:
2 a tool-head;
3 a grip coupled to the tool-head, with the grip defining a void;
4 and,
5 a separable overmold member configured to fill the void, with
6 the overmold composed of a mixture of an elastomeric material and a
7 foaming agent, comprising a first non-foam layer and a second non-foam
8 layer, in conjunction, enveloping a micro-cellular foam layer.

1 34. The tool of claim 33, wherein the elastomeric material is
2 selected from a group comprising thermoplastic olefins, thermoplastic
3 rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block
4 copolymers, and combinations of such materials.

1 35. The tool of claim 33, wherein the two non-foam layers and
2 the foam layer are integrally molded with each other by injection molding
3 of resin.

1 36. The tool of claim 33, wherein the overmold member is
2 mechanically attached to the grip.

1 37. The tool of claim 33, wherein at least one non-foam layer is
2 bonded to the grip.

1 38. The tool of claim 33, wherein the grip has a plurality of
2 pockets configured to contain the separable overmold member.

1 39. The tool of claim 33, wherein the thickness of the foam layer
2 exceeds the combined thickness of the non-foam layers.

1 40. The tool of claim 33, wherein the combined thickness of the
2 non-foam layers exceeds the thickness of the foam layer.

1 41. The tool of claim 33, wherein the combined thickness of the
2 non-foam layers is equal to the thickness of the foam layer.

1 42. The tool of claim 33, wherein the separable overmold
2 member is configured in a predetermined shape.

1 43. A tool comprising:
2 a means for working;
3 a means for holding coupled to the means for working, with
4 the means for holding defining a void; and,
5 a separable overmold member configured to fill the void, with
6 the overmold composed of a mixture of an elastomeric material and a
7 foaming agent, comprising a first non-foam layer and a second non-foam
8 layer, in conjunction, enveloping a micro-cellular foam layer.

1 44. The tool of claim 43, wherein the elastomeric material is
2 selected from a group comprising thermoplastic olefins, thermoplastic
3 rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block
4 copolymers, and combinations of such materials.

1 45. The tool of claim 43, wherein the two non-foam layers and
2 the foam layer are integrally molded with each other by injection molding
3 of resin.

1 46. The tool of claim 43, wherein the overmold member is
2 mechanically attached to the means for holding.

1 47. The tool of claim 43, wherein at least one non-foam layer is
2 bonded to the means for holding.

1 48. The tool of claim 43, wherein the means for holding has a
2 plurality of pockets configured to contain the separable overmold member.

1 49. The tool of claim 43, wherein the thickness of the foam layer
2 exceeds the combined thickness of the non-foam layers.

1 50. The tool of claim 43, wherein the combined thickness of the
2 non-foam layers exceeds the thickness of the foam layer.

1 51. The tool of claim 43, wherein the combined thickness of the
2 non-foam layers is equal to the thickness of the foam layer.

1 52. The tool of claim 43, wherein the separable overmold
2 member is configured in a predetermined shape.

1 53. A handle for a tool, comprising:
2 a base having a grip portion and a tool-head portion; and,
3 a separable overmold member associated with the grip
4 portion, with the overmold composed of a mixture of an elastomeric
5 material and a foaming agent, comprising a first non-foam layer and a
6 second non-foam layer, in conjunction, enveloping a micro-cellular foam
7 layer.

1 54. The handle of claim 53, wherein the elastomeric material is
2 selected from a group comprising thermoplastic olefins, thermoplastic
3 rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block
4 copolymers, and combinations of such materials.

1 55. The handle of claim 53, wherein the base is selected from a
2 group of materials including: wood, metal, thermoplastic resin, thermoset
3 resin, epoxy, ceramic, glass, and a combination of any two such
4 materials.

1 56. The handle of claim 53, wherein the two non-foam layers
2 and the foam layer are integrally molded with each other by injection
3 molding of resin.

1 57. The handle of claim 53, wherein the separable overmold
2 member is mechanically attached to the base.

1 58. The handle of claim 53, wherein at least one non-foam layer
2 is bonded to the base.

1 59. The handle of claim 53, wherein the base defines at least
2 one pocket in the grip portion configured to receive the separable
3 overmold member.

1 60. The handle of claim 53, wherein the thickness of the foam
2 layer exceeds the combined thickness of the non-foam layers.

1 61. The handle of claim 53, wherein the combined thickness of
2 the non-foam layers exceeds the thickness of the foam layer.

1 62. The handle of claim 53, wherein the combined thickness of
2 the non-foam layers is equal to the thickness of the foam layer.

1 63. The handle of claim 53, wherein the overmold is configured
2 in a predetermined shape.